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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/241,653	02/02/1999	HERMANN WAGNER	C1041/7002-H	8996

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EXAMINER	
ZARA, JANE J	

ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 10/06/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

F 16

Office Action Summary

Application No.	Applicant(s)
09/241,653	Wagner et al
Examiner	**Art Unit**
Jane Zara	1635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Apr 23, 2003* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-41 and 51-74* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *27-41 and 51-74* is/are allowed.

6) ☒ Claim(s) *1-9 and 13-26* is/are rejected.

7) ☒ Claim(s) *10-12* is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 31
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This Office action is in response to the communication filed 4-23-03, Paper No. 33.

Claims 1-41, 51-74 are pending in the instant application.

The restriction requirement mailed 1-24-03 is hereby vacated.

The allowability of claims 1-9, 14-26 is hereby withdrawn in light of the new rejections set forth below.

Information Disclosure Statement

The EPO search listed in the IDS of Paper No. 31, filed 2-24-03, was considered but was crossed out because it cannot be published in the patent. It does not have a publication date.

Response to Arguments and Amendments

Any rejections not repeated in this Office action are hereby withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 14-17 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Krieg et al.

Krieg et al [Cold Spring Harbor, abstract 90, page 116 (1996)] teach a method for inducing a Th1 type antigen-specific immune response comprising the administration of a CpG containing oligonucleotide 8-100 nucleotides in length to a subject, and administering to the subject an antigen at least 3 days after the administration of the CpG containing oligonucleotide, which antigen is an allergen and comprises infectious bacteria (See entire abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 7-9, 13, 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al as applied to claims 1-6, 14-17 and 26 above, and further in view of Krieg et al.

The claims are drawn to a method of inducing of a Th1 type antigen-specific immune response comprising the administration of a CpG containing oligonucleotide 8-100 nucleotides in length to a subject, and administering to the subject an antigen at least 3 days after the administration of the CpG containing oligonucleotide, which oligonucleotide optionally comprises phosphorothioate internucleotide linkages, in a colloidal dispersion, which subject is at risk of developing cancer or an asthmatic.

Krieg et al [Cold Spring Harbor, abstract 90, page 116 (1996)] is relied upon as cited in the 102 rejection above.

Krieg et al do not teach phosphorothioate internucleotide linkages in the CpG containing oligonucleotides, nor the administration of colloidal dispersions, nor a subject passively exposed to an antigen, nor an asthmatic subject or one at risk of developing cancer.

Krieg et al (USPN 6,218,371) teach the administration a method of inducing of a Th1 type antigen-specific immune response comprising the administration of a CpG containing oligonucleotide, 8-100 nucleotides in length, and an antigen to a subject (col. 3, lines 6-column 4, line 48), which antigen is optionally a nucleic acid encoding an antigen (column 14, 20-21) , and which oligonucleotide optionally comprises phosphorothioate internucleotide linkages at its 5' or

3' ends (columns 23-24), and which oligonucleotide and antigen are in a colloidal dispersion (column 19), which subject is at risk of developing cancer or an asthmatic (columns 10-11, 19).

It would have been obvious to one of ordinary skill in the art to administer a CpG containing oligonucleotide to a subject, and an antigen to the subject at least 3 days after the CpG containing oligonucleotide, because this has been taught by Krieg et al. One of ordinary skill in the art would have been motivated to incorporate phosphorothioate modifications into the oligonucleotide because this had been taught previously by Krieg et al, and one of ordinary skill in the art would have been motivated to modify the oligonucleotide in this way because it was known in the art that these modifications increase oligonucleotide stability from nuclease degradation. One of ordinary skill in the art would have expected that such modifications would increase the stability of the CpG containing oligonucleotides. One of ordinary skill in the art would have been motivated to administer the oligonucleotide and the antigen in a colloidal suspension because it had been taught previously by Krieg et al that such suspensions enhance cellular uptake of the administered compounds. One of ordinary skill would have been motivated to administer the oligonucleotide and antigen to the subjects at risk of developing cancer or asthma because Krieg et al teach that the administration of these compositions elicits a Th1 related antigen specific immune response in the subject and the administration of these compounds to such subjects would bolster their immune system and would aid in treating subjects at risk of developing cancer or with asthma. One of ordinary skill in the art would have been motivated to administer the antigen as a nucleic acid because Krieg et al teach the administration of nucleic

acids encoding antigens, and one of ordinary skill in the art would have expected that administration of nucleic acids encoding antigens, either after or with administration of a CpG containing oligonucleotide, leads to a Th1 associated immune response, and that the nucleic acid encoding the antigen expresses the antigen in the subject. One of ordinary skill in the art would have expected that an immune response would be elicited in a subject passively or actively exposed to the antigen, because antigenic exposure occurs in either case, and it had been taught previous by Krieg et al that the administration of CpG containing oligonucleotides, either before or with administration of an antigen, induces a Th1 associated immune response in a subject.

Therefore, the instant invention would have been obvious to one of ordinary skill in the art at the time the invention was made.

Allowable Subject Matter

Claims 10-12, 27-41 and 51-74 appear free of the prior art of record.

Claims 10-12 are objected to for being dependent upon a rejected claim.

Conclusion

Certain papers related to this application may be submitted to Art Unit 1635 by facsimile transmission. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. § 1.6(d)). The official fax telephone numbers for the Group are (703) 308-4242 and (703) 305-3014. NOTE: If Applicant *does* submit a paper by fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jane Zara** whose telephone number is **(703) 306-5820.** If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader, can be reached on (703) 308-0447. Any inquiry regarding this application should be directed to the patent analyst, Katrina Turner, whose telephone number is (703) 305-3413. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

RAM R. SHUKLA, PH.D.
PRIMARY EXAMINER

JZ

October 3, 2003